

TOSHIBA BI-DIRECTIONAL TRIODE THYRISTOR SILICON PLANAR TYPE

SM8LZ47

AC POWER CONTROL APPLICATIONS

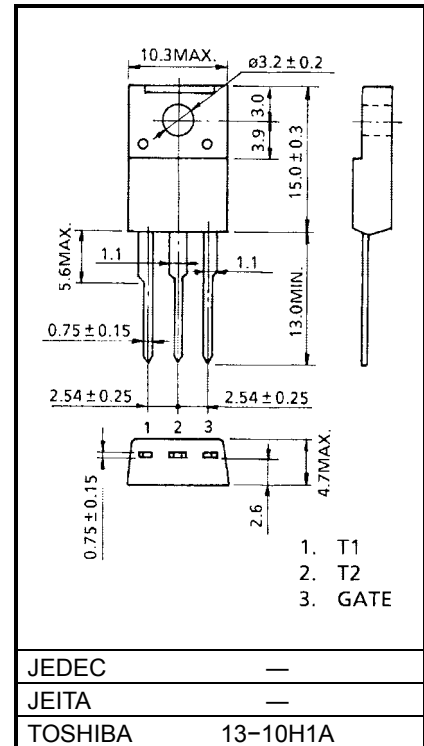
- Repetitive Peak Off-State Voltage : $V_{DRM} = 800V$
- R.M.S ON-State Current : $I_{T(RMS)} = 8A$
- High Commutating (dv / dt) : $(dv / dt)_c = 10V / \mu s$ (Min.)
- Isolation Voltage : $V_{ISOL} = 1500V$ AC

MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Repetitive Peak Off-State Voltage	V_{DRM}	800	V
R.M.S On-State Current (Full Sine Waveform)	$I_{T(RMS)}$	8	A
Peak One Cycle Surge On-State Current (Non-Repetitive)	I_{TSM}	70 (50Hz)	A
		80 (60Hz)	
I^2t Limit Value	I^2t	24.5	A^2s
Critical Rate of Rise of On-State Current (Note 1)	di / dt	50	A / μs
Peak Gate Power Dissipation	P_{GM}	5	W
Average Gate Power Dissipation	$P_G (AV)$	0.5	W
Peak Gate Voltage	V_{FGM}	10	V
Peak Gate Current	I_{GM}	2	A
Junction Temperature	T_j	-40~125	$^{\circ}C$
Storage Temperature Range	T_{stg}	-40~125	$^{\circ}C$
Isolation Voltage (AC, t = 1min.)	V_{ISOL}	1500	V

Note: di / dt test condition
 $V_{DRM} = 400V$, $I_{TM} \leq 12A$, $t_{gw} \geq 10\mu s$, $t_{gr} \leq 250ns$,
 $i_{gp} = I_{GT} \times 2.0$

Unit: mm

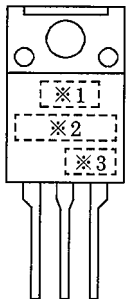


Weight: 1.7g

ELECTRICAL CHARACTERISTICS (Ta = 25°C)

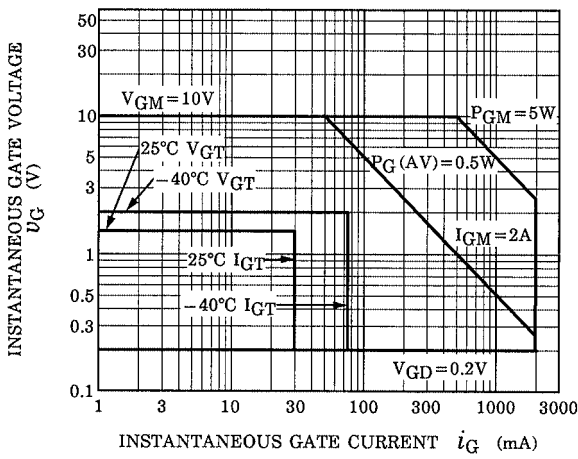
CHARACTERISTIC		SYMBOL	TEST CONDITION	MIN	TYP.	MAX	UNIT	
Repetitive Peak Off-State Current		I_{DRM}	$V_{DRM} = 800V$	—	—	20	μA	
Gate Trigger Voltage	I	V_{GT}	$V_D = 12V$ $R_L = 20\Omega$	T2 (+), Gate (+)	—	—	1.5	V
	II			T2 (+), Gate (-)	—	—	1.5	
	III			T2 (-), Gate (-)	—	—	1.5	
Gate Trigger Current	I	I_{GT}	$V_D = 12V$ $R_L = 20\Omega$	T2 (+), Gate (+)	—	—	30	mA
	II			T2 (+), Gate (-)	—	—	30	
	III			T2 (-), Gate (-)	—	—	30	
Peak On-State Voltage		V_{TM}	$I_{TM} = 12A$	—	—	1.5	V	
Gate Non-Trigger Voltage		V_{GD}	$V_D = 800V, T_c = 125^\circ C$	0.2	—	—	V	
Holding Current		I_H	$V_D = 12V, I_{TM} = 1A$	—	—	50	mA	
Thermal Resistance		$R_{th(j-c)}$	Junction to Case, AC	—	—	3.6	$^\circ C / W$	
Critical Rate of Rise of Off-State Voltage		dv / dt	$V_{DRM} = 800V, T_j = 125^\circ C$ Exponential Rise	—	300	—	$V / \mu s$	
Critical Rate of Rise of Off-State Voltage at Commutation		$(dv / dt)_c$	$V_{DRM} = 400V, T_j = 125^\circ C$ $(di / dt)_c = -4.5A / ms$	10	—	—	$V / \mu s$	

MARKING

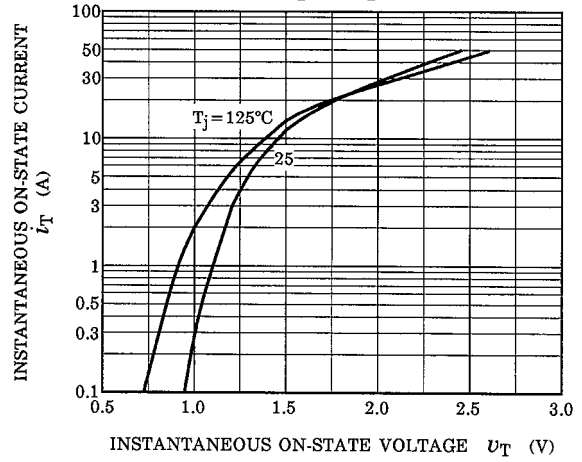


NUMBER	SYMBOL	MARK
* 1	TOSHIBA PRODUCT MARK	
* 2	TYPE SM8LZ47	M8LZ47
* 3	Lot Number 	Example 8A : January 1998 8B : February 1998 8L : December 1998

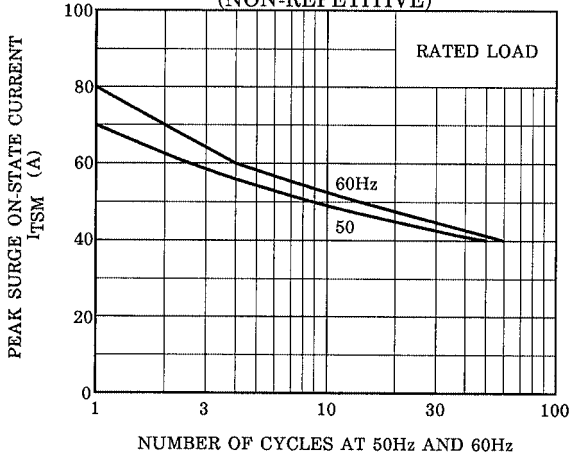
GATE TRIGGER CHARACTERISTIC



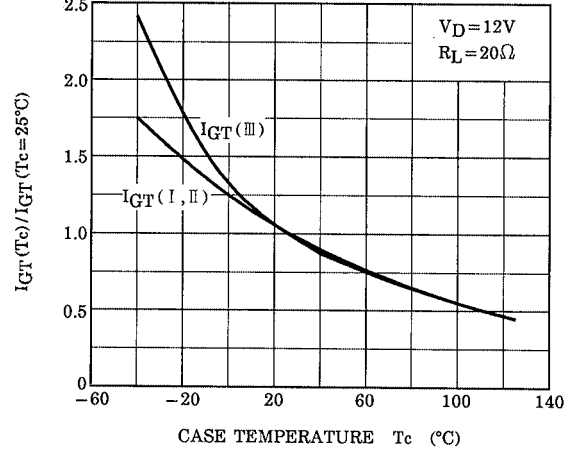
$i_T - v_T$



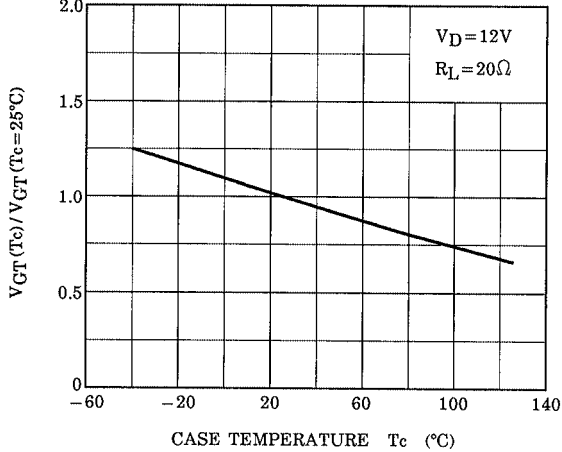
SURGE ON-STATE CURRENT (NON-REPETITIVE)



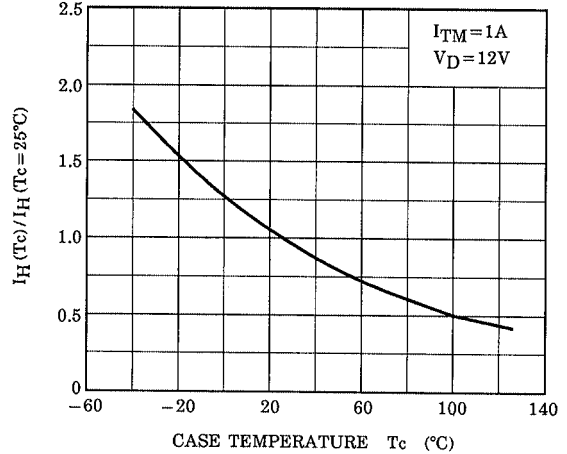
$I_{GT}(T_c) / I_{GT}(T_c=25^\circ\text{C}) - T_c$ (TYPICAL)

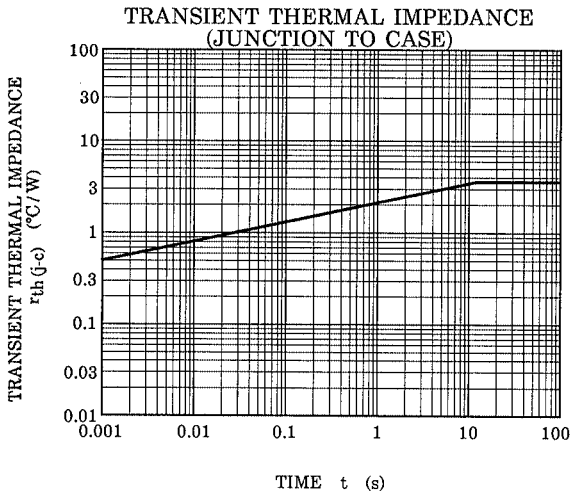
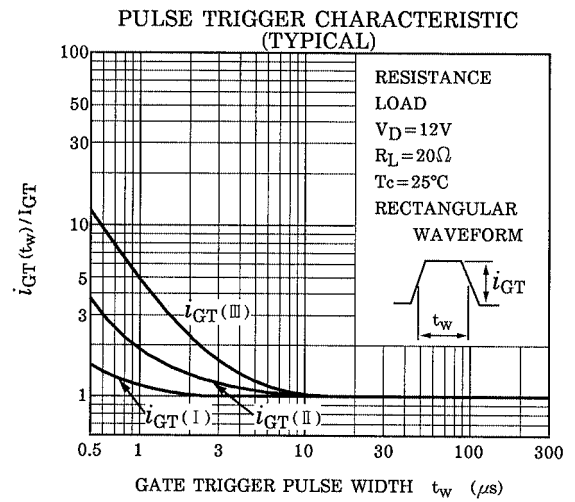
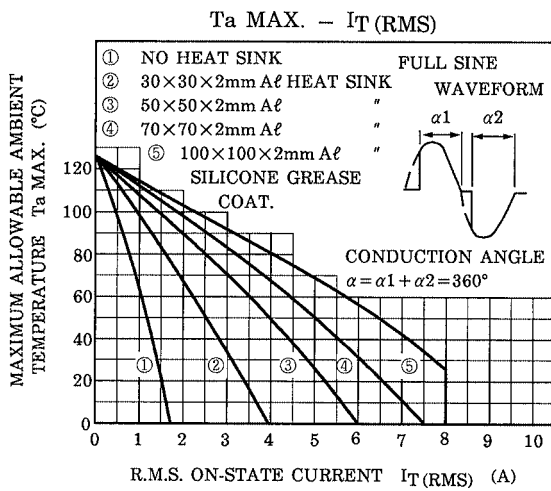
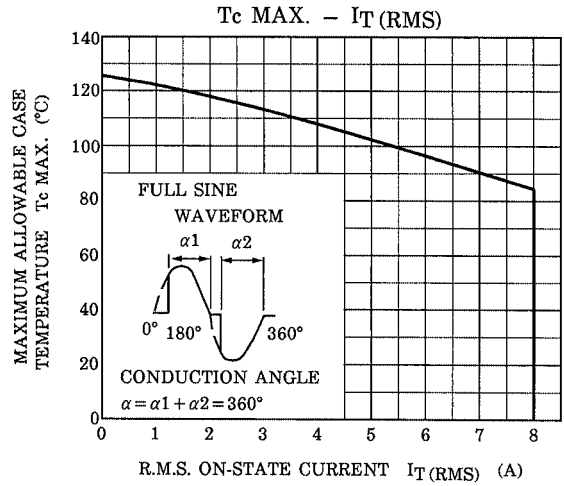
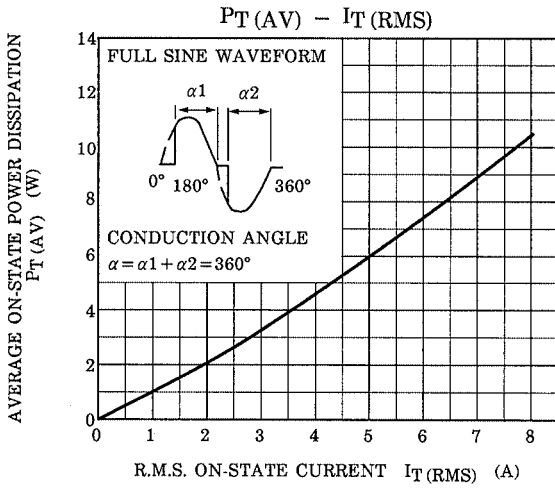


$V_{GT}(T_c) / V_{GT}(T_c=25^\circ\text{C}) - T_c$ (TYPICAL)



$I_H(T_c) / I_H(T_c=25^\circ\text{C}) - T_c$ (TYPICAL)





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